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ABSTRACT

A discussion of higher education costs looks at two aspects of costs (the factors that influence them and the types of cost analysis) and synthesizes the results of a survey of state higher education officers (SHEEOs). A variety of factors influencing the number and type of resources available to a college are examined, including influences within the institution, within the higher education community, and external to higher education. Options for cost analysis are examined in terms of the purposes of the analysis and the methods available to accommodate them. Analysis types discussed include cost determination, explanatory cost analysis, and evaluative cost studies. SHEEOs' responses to two survey questions are analyzed. The first question focused on the officers' level of concern about each of 14 specific cost-related issues, and distinguished between the responses of coordinating board and governing board officers. The second question was designed to elicit opinion on where the best opportunities for improving productivity in higher education are to be found. Responses are summarized in six appended tables. Contains 6 references. (MSE)

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THE COST OF PROVIDING HIGHER EDUCATION:

A CONCEPTUAL OVERVIEW

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June 1988

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FOREWORD

The paper which follows was commissioned by the SHEEO Committee on College Costs, chaired by Gordon K. Davies, Director of the State Council of Higher Education for Virginia.

The committee, created by 1987-88 SHEEO President Kerry Romesburg, responded to the heightened public concern about the rising cost (or price, more precisely) of a college education. The committee set as its task to confront three important public policy questions facing the states: What factors affect the price paid by students for a college education? What factors affect the total cost of higher education, especially that portion borne by state taxpayers? And finally, how can states help insure that parents and students are able to pay the cost of going to college?

In addition to this paper by Paul Brinkman, the committee sponsored three other related activities: a 50-state survey of state finance and executive officers on tuition, student aid and cost issues; a paper by Denis Curry on tuition and student aid policy ("Tuition and Student Policies: What Role for SHEEOs?"); and a monograph by John Wittstruck and Steve Bragg, "Trends in Public Higher Education: Tuition and State Support." All three are available from the SHEEO Office. The summary committee report will be available in August 1988.

I welcome your comments and reactions to these papers and reports.

James R. Mingle
Executive Director
State Higher Education Executive Officers

PREFACE

This paper has been designed as a background piece for the SHEEO Committee on College Costs and SHEEO members generally. It is primarily a conceptual overview of two aspects of higher education costs: factors that influence college and university costs, and types of cost analysis. A premium has been placed on synthesis, on the larger picture, rather than on preparation of a scholarly treatise with scores of citations. One might even say that the views represented are somewhat personal, hopefully not in the negative sense of being subjective or biased, but rather in the sense of someone who works in the field taking the opportunity to ponder several related questions. What are all the influences on the costs of providing higher education? How can one pull together all these influences in some kind of conceptual scheme? What are the important distinctions to draw among approaches to cost analysis? Are there cost analyses that look particularly interesting from a state perspective?

The paper also synthesizes the responses to two questions about costs in a recent survey of SHEEO members. The members show concern about the costs associated with a variety of activities and conditions, but they also believe that there are numerous opportunities to do something positive about costs and productivity in higher education. It is the intent that the juxtaposition of these practical concerns and strategies with the more abstract conceptual approach of the first two sections of the paper will be fertile ground for additional ideas and insights into what affects higher education costs, how they can be analyzed, and what can be done to move them in one direction or another.

THE COST OF PROVIDING HIGHER EDUCATION

The costs of higher education have become part of the national agenda. State coordinating and governing boards have an interest too, as they seek to foster both effectiveness and efficiency in their higher education systems. This paper is meant to contribute to the ongoing dialog about higher education costs by delineating the factors that can influence those costs, describing various types of cost analyses including some that would seem to be particularly useful at the state board level, and synthesizing the responses of State Higher Education Executive Officers to a recent survey about costs.

Higher education costs come in numerous varieties and are borne by many participants in the enterprise. In what follows, the focus is on recorded costs from the perspective of institutions, rather than on student costs or unrecorded opportunity costs.

I. Factors that Influence College Costs

In the most basic terms, total costs in higher education are the same as total costs in any other industry. They are a function of the type and amount of resources (or inputs) used and the prices of those resources. But what influences the number and type of resources used by a college or university at a given point in time? And the prices of those inputs? These are the issues addressed in this section.

Figure 1 lists the factors that influence the type and amount of resources acquired and used by colleges and universities as well as the prices they pay for those resources. The outline represents a conceptual overview, a way of thinking about higher education costs. Three sources, or levels, of influence are proposed: colleges and universities themselves, the higher education community, and the overall environment outside of higher education. The lines dividing these sources must necessarily be drawn somewhat arbitrarily. In particular, the boundaries that divide the higher education community from the rest

Figure 1. Influences on Higher Education Costs

A. Influences Within the Institution

1. Institutional Culture

   a. Goals
   b. Institutional saga
   c. Concept of and commitment to quality
   d. Motivation with respect to costs and efficiency

2. Material Conditions within the Institution

   a. Services provided
   b Aspects of the physical plant
   c. Revenues
   d. Governance and management

B. Influences Within the Higher Education Community

1. Community Culture

   a. Disciplinary norms
   b. Accrediting agency norms
   c. Nondiscipline-based faculty and administrator norms

2. Material Conditions within the Community

   a. Knowledge base and the content of disciplines
   b. Available instructional technologies
   c. Relationships among institutions
   d. Authority and power of community organizations

C. Influences External to Higher Education

1. General Culture

   a. Expectations regarding higher education
   b. Valuing of higher education
   c. Aspects of the broader culture

2. Material Conditions within the Environment

   a. Governmental
   b. Political
   c. Economic
   d. Demographic
   e. Technological
   f. Social

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of society are not well defined nor are they permanent, and the environment is itself influenced by higher education.

Operating at each level are two types of factors: culture and material conditions. "Culture" represents the dominant set of beliefs, values, attitudes, and norms. "Material conditions" represent the actual state of affairs in a physical sense as well as in terms of structures and relationships. In what follows, only first-order effects are discussed, but it is worth keeping in mind that there are second- and higher-order effects. These would include both the interaction effects at a given point in time, and the many causal effects that occur over time within and across the conceptual boundaries displayed in Figure 1; for example, an aspect of culture in one period having an impact on the material conditions in another period.

A. Influences Within the Institution

The influences that operate within the institutions themselves are the most immediate causes of higher education resource requirements.

Institutional Culture. It has been shown time and again that institutions whose role and scope are quite similar can still have rather different cost and resource utilization patterns. Differences in the way institutions conceive of themselves and their place in the scheme of things are one reason for this phenomenon. For example, there are cost implications when an institution that used to think of itself as a "teachers college" now views itself as a "comprehensive university." The same is true for an institution that considers itself a "caring" institution when caring is defined as "we never fire anyone." Effects on cost are obvious when an institution adopts the conventional view of quality which is dominated by concern about resources. Institutions that value efficiency will probably be more efficient.

Material Conditions. The services made available by an institution affect costs in several ways, as the type of service, the amount provided, and the clientele can affect resource usage.

Institutions differ with respect to their involvement in the primary services--instruction, research, and public service--with major consequences for costs. Within instruction, average costs per student credit hour differ by field of study and by level of instruction. Programs in the same field can have different average costs. The sheer number of programs can affect average costs across an institution. Similarly, resource requirements vary by research area or emphasis within public service. Divergence in average costs per student is often large in the support areas, primarily because of differences in the extent of the effort in these areas.

Various aspects of higher education's clientele affect costs. The number of students, the primary clientele for most institutions, affects the productivity of resources for an institution overall and for its various operating units. A change in the number of students, overall or with respect to the way they are distributed internally across levels and programs, often affects human and physical resource utilization. The efficient use of resources is dependent on the interests of other clients as well, such as federal research agencies. Student preparation, socio-cultural background, and intellectual ability can also affect cost, as institutions attempt to respond to an extensive range of individual needs and capabilities.

The physical plant can affect costs along at least four dimensions: number of sites, location, age, and "prior effort." A single-site structure will typically be less expensive than a multiple-site structure, other things being equal. Geographic location impacts cost through the amount of fuel needed for heating and cooling, snow removal costs, and so on, but also through campus security needs, fire protection, sewage disposal, and other such characteristics whose costs can be related to particular circumstances. The age of the buildings affects operation and maintenance costs. Of course, at any given time prior maintenance efforts will be critically important to the condition of the buildings and thus to the current cost of maintenance. The same can be said about capital investments for energy

conservation. An institution's prior effort in obtaining and maintaining scientific equipment is an important factor in its current cost outlook.

Institutions use different resource configurations to do apparently similar tasks in part because they have different amounts of revenue available with which to obtain those resources. The same is true for operating units within the institution; thus previous budgets, or previous distributions of resources throughout the institution, are important influences on current costs.

Two other aspects of the revenue situation can also affect costs. One, because some revenues are tied directly to services, institutions may seek to increase their level of services in order to increase revenues. In so doing, they end up with higher total costs. The prime example in the public sector is enrollment driven funding, wherein institutions are, in effect, encouraged to grow so long as their perceived marginal cost for additional students is less than their marginal revenue. Two, raising revenue can itself be more or less costly. The effect on costs may be direct, as in the case of fund raising through a development office, or indirect, as in the case of recruiting students or competing for research dollars. In all likelihood, one of the reasons why administrative and student services costs have risen disproportionately to other functions in recent years is the additional effort involved for many institutions in securing adequate amounts of revenue.

Although aspects of the issue have not been explored at length, it is not hard to imagine how governance structures might affect costs. For example, consider the relative impact on opportunity costs of decisions that are made "top-down" rather than by committees, especially faculty committees, or the possible long-term effects on costs when faculty and classified staff are unionized.

Managers customarily are held responsible for operational efficiency. Various management capabilities can impact on costs; for example, there is a difference in prospects

for cost containment between an institution whose officers know what its costs are versus one in which they do not know.

Budgeting is perhaps the most critical management task with respect to costs. How the budget is developed and monitored, the relationship between budgeting and planning, and the underlying incentives at work in both building the budget and adhering to it are relevant. The most powerful forces underlying almost any budgeting process, the "fair shares" principle and incrementalism, are important reasons behind the particular distribution of resources and costs across a given campus and for the continuing upward movement of costs on most campuses.

B. Influences Within the Higher Education Community

A particular college or university is a concretization of the idea of higher education. As such, the institution is part of an extensive national, even international community of both other higher education institutions and "invisible colleges," the many formal and informal associations of academics. Membership in this community has important ramifications for cost because of various community-based expectations as well as conditions in the community.

Community Culture. Most institutions are affected in important ways by the mores, values, beliefs, and attitudes of the higher education community, or parts of it. These influences are sometimes subtle and, in a strict sense, they are nonbinding.

The disciplined-based influences are the most important because they are proximate causes of costs. As Burton Clark (1984) has so aptly put it, higher education is "bottomheavy," meaning that many significant decisions about resource allocation are made at the bottom, where the instructional goods are delivered. These decisions are affected by what faculty think ought to happen, and that in turn is a function of their discipline--the way they have been ingrained to think and behave. For example, their views about what it

takes to mount a program in undergraduate physics have their roots in discipline-based understandings of both the knowledge to be conveyed and the processes for teaching it, and these views have a direct bearing on cost.

Of course, discipline norms are concretized within an institution. The result, the actual observed behavior, is always a combination of disciplinary and institutional influences. The situation can best be described as a matrix with disciplines on one axis and individual institutions on the other. The resources deployed in each cell and the attendant costs depend on this joint influence. The strength of the disciplinary influence tends to be systematically related to institutional type. The influences are weakest in community colleges, typically, and strongest in those institutions whose reward structures emphasize research and scholarship rather than teaching.

Programs in the applied fields, which usually involve a combination of disciplines, often feel the influence of a third dimension in the form of accrediting agency norms. These norms typically set lower limits only, which has consequences for costs if the limits are "inside" the current parameters of a given institution.

Finally, there appears to be a set of norms regarding general working conditions. Throughout the four-year sector, faculty are teaching fewer courses now than they did several decades ago. Large administrative staffs have also become standard. The overall administrative task has increased in complexity during this period, which explains some of the increase.

Material Conditions. Costs are influenced by several aspects of the underlying condition of the higher education community.

The knowledge base and the content (themes, paradigms) of the various disciplines affect cost. An especially important form of disciplinary change in this regard is the specialization and splintering that occurs from time to time in the science disciplines. It has

cost implications in the form of additional start-up costs, increased potential for diseconomies of scale, and increased managerial complexity.

Instructional technologies never seem to change as fast as predicted. Still the potential for change and for impacts on cost remain high. Although instructional tools, such as computers, in their basic form typically are products of the external environment, it makes sense to think of instructional technology, the weaving of these tools into an instructional process, as a component within the higher education community. Whether these new technologies become widely used depends on faculty preference--culture rather than material condition.

Relationships among institutions have implications for costs. At present the dominant relationship among institutions seems to be that of competition, spurred on by demographic conditions and the realization that quality, or the perception thereof, is saleable. Recent additions to administrative or other nonfaculty professional positions may be the result of an effort to become more competitive, to become a better institution through better management. Without doubt, this increased competitiveness is leading to higher costs.

The U.S. higher education community lacks organizations comprised of faculty or administrators with authority over the distribution of national resources. The peer review process for federal research funds is an exception, but it is rather loosely organized when compared, for example, to the University Grants Committee which held sway in Great Britain for many years. The growth of faculty unions in the United States has increased community influence over costs; these influences typically are local or confined to state systems.

C. External Influences

In addition to the higher education community, colleges operate within a much larger, more complex environment. Both culture and material conditions are again relevant.

Culture. Conceptually, two aspects of the general culture are worth distinguishing: expectations for, and the valuing of, higher education, and aspects of culture which are not inherently related to higher education.

If nothing more were expected of higher education today than fifty years ago, total higher education costs would now be much lower. Governments and various groups within society continue to create new expectations for higher education (essentially, better and more types of services for more segments of society), thereby creating upward pressure on costs. Expectations regarding efficiency and cost containment create pressure in the opposite direction.

The value placed on higher education is, of course, fundamental in terms of direct participation in, and general support of, higher education, with enormous ramifications for a society's investment in higher education. Participation includes the willingness not only to study or to purchase other services, but also to become involved in the higher education work force, especially as a faculty member. Higher education labor costs will surely escalate if the "academic life" ceases to be an attractive option for talented individuals who are willing to work for less money, at least in some fields, than they might otherwise earn.

The way in which students and parents judge the value of a particular college or university can also affect costs. It has been argued recently that many people evaluate the value, or quality, of elite institutions in the private sector in terms of price--the higher the tuition the higher the perceived quality (Werth, 1988). The incentives for these highly visible institutions are obvious. Given the correlation between revenues and costs, the cost consequences for the larger community may be significant.

Recent cultural developments essentially unrelated to higher education, such as the civil rights movement and egalitarianism, have affected higher education costs. Some of the effects have been complex. The women's movement, for instance, has helped maintain enrollments, thereby preventing some unit cost increases due to scale effects. The advent of

women's studies and women's athletic programs, however, has raised total costs, while the decline in interest in female-dominated areas, such as nursing, has led to unit-cost increases for institutions unable to reduce resources accordingly.

Material Conditions. A great variety of environmental conditions affect higher education costs. One of those conditions is the manner and extent of governmental approaches to higher education. Financing and regulation are the two most important areas. Governmental financing is largely the converse of the institutional revenue condition discussed earlier. The amount provided for various purposes and the mechanisms for funding are two critical elements.

Various types of regulations that affect costs can be distinguished: for example, state and federal regulations having to do with enforcing explicit social values (e.g., occupational safety codes), state directives as to how institutions must spend their funds (e.g., state mandated salaries for classified staff), and state coordination. An interesting question in the present context is what effect state coordination has on costs.

The political dimension of the environment has an indirect but nonetheless very considerable effect on costs, by virtue of its impact on a large portion of the revenues flowing to higher education. Within a state, the distribution of political power over a period of years affects the revenues available for higher education as a whole and for individual segments and institutions. The degree of involvement of political officials or parties in higher education affairs impacts on the extent to which the distribution of resources across institutions can be rationalized.

The movement of prices in the economy has a direct effect on higher education costs. The demand for certain types of labor resources, such as engineers, can lead higher education into costly bidding wars with business and industry. Economic conditions in a state usually have a significant impact on state revenues going to higher education, and thus an indirect effect on higher education costs. Similarly, fluctuations in economic conditions in the form of

employment rates lead to fluctuations in enrollment, which in turn affect costs through scale effects and revenues.

Demographic changes can influence higher education costs in many ways. For example, the decline in the pool of traditional college age students has led many colleges to pursue older, nontraditional students. Legions of directors of continuing education, weekend colleges, and so on, testify to some of the costs involved in this strategy. The change in the ethnic composition of the nation's population is already having an impact on higher education costs, and the future in this regard is daunting.

Technological changes can affect higher education costs both positively and negatively. Energy saving technologies, for example, can be used to reduce the cost of operating the physical plant. By contrast, colleges and universities must keep up with technological developments relevant to instruction and research, which leads to increased equipment costs. Administrative functions are not immune from technological changes, as the current microcomputer phenomenon amply demonstrates; in this instance, there may be offsetting gains in productivity and better management, which could reduce costs.

Changes in social structures can have long-term effects on costs. From the perspective of higher education, one of the most fundamental developments during the past century has been the growing prevalence of organizations that can operate effectively only with the help of large numbers of college-educated individuals. This development has contributed to a many-fold increase in higher education enrollments, with positive scale effects on unit costs but enormous increases in total costs.

II. Options for Cost Analysis

Many kinds of cost analysis are possible. Indeed, given the variety of purposes, methods, and types of cost, the number of permutations is virtually unlimited. In what follows, there is a segment on purposes with some comments on methods, and a brief segment

on types of cost. The section concludes with several illustrations of cost studies that appear to be especially appropriate from a state-level perspective.

Purpose

In broad terms, one can disaggregate the universe of cost studies by distinguishing whether their primary purpose is to determine costs or to explain costs or to evaluate costs. Of course, costs cannot be explained or evaluated until they have been determined, and the difference between explanation and evaluation is not large. Still, the distinctions are useful in thinking about and planning for possible cost studies.

Cost determination studies are essentially exercises in 1) finding suitable records of pertinent expenditures or of material and human resource usage, and 2) allocating those expenditures or resources to cost objectives (such as a department, activity, or outcome). Accountants refer to procedures for undertaking these activities as "cost finding principles." It is important to grasp the implication in that phrase. Cost data typically do not lie about waiting to be used--they have to be found, or determined. This basic circumstance and the fact that allocation is so often needed in the process of determination are the reasons behind the adage that prices and expenditures are facts, costs are opinions.

The activity of determining costs is sometimes referred to as "constructing costs." As such, it resembles developing a budget by listing required resources and their respective prices. An important difference between a budget and a cost study is that the latter may (depending on the cost objective) reach out well beyond the confines of a particular budget center to include expenditures or resources that may appear in the financial records as part of some other budget center(s).

An important methodological consideration for any proposed cost analysis is the nature and degree of required allocations. In some instances, there is general agreement as to how to allocate a particular type of cost. In other instances, there is little or no agreement.

The less the agreement, the more vulnerable and open to challenge are the results. For example, a cost study that sets out to determine costs per credit hour for graduate education will typically be easier and less subject to challenge than one that sets out to determine credit-hour costs for masters versus doctoral education--because of the additional and usually quite difficult task of allocating resources used to produce masters versus doctoral credits. Similarly, a cost study that focuses on direct costs only will usually be less subject to question on allocational grounds than one that attempts to determine full costs (direct plus indirect). This does not mean that the more difficult analyses should be avoided. It does mean that there should be good reason to do them.

Sometimes, and this might frequently be the case in a state board, the allocation will have already been done by someone else (for example, someone at the institutional level). In this case, an early step in any subsequent analysis is to ascertain how the allocation was done.

Explanatory cost analyses are designed to make costs more understandable, to figure out why they behave the way they do. The ultimate objective can be the understanding itself, as might appeal to the researcher, or the control that often comes with greater understanding, which is of interest to those who have policy making or managerial responsibilities. The analytical approaches in these studies generally take one of three forms: inferential statistical techniques, a direct examination of potential causes of historic costs (call it "managerial analysis"), and modeling, or engineering like, techniques.

The primary statistical technique is some form of multiple regression, which is used to estimate a particular form of what economists call the "cost function." In the most typical version of this approach, costs (total or average) are regressed on measures of output, prices, and technical conditions. The primary objective is to understand the relationship between costs and the volume of output. Prices and technical conditions (for example, case mix for hospital costs, program mix for instructional costs) are in the equation because they are

intervening variables; the statistical technique allows the effects of these variable to be neutralized.

Although it is used mostly in an explanatory mode, the regression approach is also useful for determining costs. It offers a way to estimate parameters, such as marginal costs, or the costs of jointly produced services, that are otherwise very difficult to determine. However, the nature of the technique is such that the determination can never be anything other than an estimate.

By driving a plane through a multidimensional scatter of points, regression analysis develops data about average behavior. Other forms of statistical analysis focus on the boundaries of the scatter plot. These studies are generally known as frontier analyses. They typically employ linear programming techniques. The lack of good data on, and agreement about, higher educational outcomes is one reason why these studies are quite rare. Obviously, there are implications for basing policy on average behavior versus frontier behavior.

Perhaps the best known example of an approach to managerial cost analysis was developed by cost accountants interested in higher education (Robinson, Ray, and Turk, 1977). They showed how historical costs could be usefully understood in terms of the effects of volume, decisions or policies, and the environment. For example, an increase in average costs per student in a particular department might have been the result of a drop in enrollment or a decision to add to the faculty complement or an increase in the cost of supplies.

Cost models can be simple or complex. The essential idea is to first disassemble the whole into its parts, and then to examine the consequences for costs of reassembling the whole in alternative ways. The "whole" could be a curriculum, or some large component thereof, as is the case in the best known example of this approach to cost analysis, the work done by Bowen and Douglass (1971) on various ways of providing a liberal arts curriculum. The first series of computer-based simulation models, such as TRADES, CAMPUS, and RRPM, which were popular during the 1970s, are in a sense a type of cost analysis, or at least can

be used as such, and the same can be said for EDUCOM's EFPM, a financial modeling language, which dominated the early 1980s. At present there are innumerable microcomputer software products that can be used to facilitate the simulation, or "what if," approach to understanding cost behavior.

Evaluative Cost Studies often share many of the same procedures with explanatory cost studies. The difference is more one of intent than of method, with one exception and that is the role played by outcomes. The question of outcomes lingers about explanatory studies but is front and center in evaluative studies. This is not to say that it is not finessed in the latter as well as in the former--in part because decisions must often be made in the absence of full knowledge. But psychologically it is often more difficult to do so in the evaluative than in the explanatory context.

Efficiency studies are the generic form of what is meant here by evaluative cost studies. Efficiency is measured as cost per unit of outcome. Cost studies are perhaps most often thought of in connection with the concept of efficiency, or conversely, inefficiency and waste. In reality, actual tests of efficiency are difficult to accomplish in a strict sense because they require measurement of outcomes and because higher education outcomes are notoriously difficult to define, much less measure. Oftentimes, however, outcomes are handled reasonably well through proxies and assumptions. The purist may argue that one is left more with the structure of an efficiency measure than its substance, but that may be sufficient for some management purposes. An illustration: A coordinating board routinely determines costs per student credit hour for undergraduate instructional programs for all of the institutions within its purview. Programs that fall outside of certain cost parameters, such as a range about the mean value, are subject to further scrutiny. In this instance credit hours earned is used as a proxy for outcomes and it is assumed that credit hours are equivalent representations of outcomes (or output) across operating units.

Several variations of the generic efficiency study can be distinguished. For example, a study can be designed explicitly to compare the costs of alternative courses of action with the expressed purpose of assisting in the choice between them. An illustration: A state board compares the cost of buying slots in a program offered by a university in the independent sector with the cost of developing a similar program in a public sector university.

Alternatively, to carry the last illustration further, the board could formally and rigorously address all of the respective outcomes of the two choices as well as the costs. If they were to translate those outcomes into dollar terms, the study would be labeled a "cost-benefit" analysis. If the board elected instead to assess outcomes with some common measure of effectiveness (such as a test score), the study would be labeled a "cost-effectiveness" analysis, using fairly standard terminology (Levin 1983).

Cost Objective

The purpose of a cost study is closely related to what is called the "cost objective," or the subject matter of the cost analysis. Three types of objectives are predominant: functions or activities, organizational units, or resources (objects of expenditure).

Functions can be defined broadly or narrowly and can relate to any portion of the activities included within higher education. For example, institutional support, a fund accounting category, represents a broad category of activities. Institutional cash management, which falls within institutional support, is much narrower and is unlikely to be a category within most accounting systems--which does not mean it could not or should not be the subject of a cost analysis.

Organizational units are often the subject of cost studies. These same units tend to be budget centers; thus expenditure and resource data are often readily available--depending on the type of cost to be analyzed (for example they would be more readily available for direct rather then for full costs).

Cost studies by function or by organizational unit may present costs in the form of resources (inputs) as well as, or instead of, expenditures, but the resources themselves can also be the objective of the study. For example, one might examine the change in average faculty salaries over time. Or one might examine the ratio of support staff to faculty, or the change over a decade in the share of educational costs going to nonpersonnel items.

Largely unexplored except in implicit ways, higher education goals or state goals for higher education could, at least in principle, be the cost objective. For instance, a state board could attempt to determine the cost of efforts to provide access or to further regional economic development.

Interesting Cost Studies

Ultimately, the interest or utility of a cost study is a matter of specific circumstances. In Section III below, survey results are presented which indicate the areas of current interest and concern to the state boards. What follows here are brief comments on the state versus the institutional perspective on cost analysis and what that suggests for cost studies and a few thoughts on what the conceptual framework of Section I suggests for cost studies. Section III concludes with a few additional suggestions for studies based on the survey results.

Taking a state perspective on costs, rather than an institutional perspective, makes a difference with respect to the cost objective. There are issues of particular concern to the state, such as state goals for higher education, that are less interesting to institutions or take a different form when looked at from the perspective of an individual institution. Access and economic development come most immediately to mind. These broad goals would have to be reasonably well defined and broken down into their components before an analytic costing strategy would have much chance of emerging. For instance, access could be defined in reference to a particular type of institution, a particular type of program, or, more interestingly, to a particular type of student. Economic development, a term that tends to be

as vague as it is popular, could be made specific in terms of manpower goals (entry level, upgrading, retraining), resource goals (information, guidance, testing, calibration), and research goals (basic knowledge, new technologies, new products). The envisioned study would be a cost determination effort with lots of allocational issues to resolve. A successful study would be helpful in assessing the real effort being put forth in support of state goals.

The conceptual framework of Section I suggests that if one were to embark on the task of explaining or understanding costs--with a mind to enhancing the prospects for containing them--there are three locations in which to look for factors that might be influencing costs: institutions, the higher education community, and the larger environment, with cultural and material factors operating within each of the locations. This six-fold structure could be used as a framework for addressing one of the more interesting phenomenon of the day, which is the relatively large increase in administrative costs that has occurred in many institutions in this decade. Finding appropriate units of workload would be a challenging aspect of such an undertaking.

The current emphasis on assessment may mean that somewhere in the future evaluative cost studies in the form of cost-effectiveness analyses may become more feasible than at present. If so, such analyses would seem to be a reasonable direction to pursue for boards that are active in program review, or that have to make choices or recommendations as to where certain programs are offered (remediation programs, for example, might be an appropriate target for this type of anlysis).

III. Survey on College Costs

As part of the work of the SHEEO Committee on College Costs, the chief executive officers were surveyed for their opinions on matters relating to tuition, student aid, and institutional costs. Their responses to the two questions on institutional cost will be discussed in what follows.

The first question focused on the level of concern about various dimensions of higher education costs. The respondents, 48 in all, had four choices, from low to high, to express their level of concern on each of 14 specific issues. The results are shown in the appendix. The level of concern was highest for graduate program costs and for equipment and computer costs, when the "high" and "moderately high" responses were combined. Eighty-three percent of the respondents chose one of those two responses. Equipment and computer costs received the largest number of "high" responses. Only travel costs, among the specified issues, was of little concern to the respondents; the next lowest item was athletic costs, with about a third of the respondents expressing at least moderate concern.

As the data in Tables 2 and 3 indicate, there are only a few noticeable differences in the rank-order of concerns between respondents from coordinating boards versus those from governing boards. Concern about professional/medical school costs and administrative and other support costs is more widespread among coordinating boards. Concern about library costs is somewhat more prevalent among governing boards. Representatives of the two types of boards had roughly the same overall levels of concern about costs and productivity, as measured by the percent of all responses that were at least in the "moderately high" category.

In looking at these results from the perspective of Section I, the discussion of influences on cost, it is apparent that the material infrastructure at the institutional level is a major concern at this time. And within that category, apart from costs related to buildings, advances in technology are the source of much of the concern. Not only is the need to stay abreast of technological advances at work in areas such as equipment and telecommunications, but it is probably one of the reasons why graduate education costs and professional school costs are of great concern.

The second question on costs was designed to elicit opinion on where the best opportunities are for improving productivity in higher education. The responses are

summarized in Table 4, for all boards, and Tables 5 and 6 for coordinating and governing boards, respectively.

As shown in Table 4, there is considerable agreement that three areas in particular offer opportunities for productivity improvement and thus cost containment. The first area, cooperative library and computing ventures, suggests a strategy that acknowledges the inevitability of having to incorporate technological advances, but seeks ways of applying the technology itself in less expensive ways. This is in contrast to the strategy implicit in two other highly rated options, greater utilization of computer technology and greater utilization of telecommunications and distance learning, which clearly are efforts to use technology to improve productivity in basic activities such as record keeping and teaching.

The second of the highest rated possibilities, controlling future academic expansion, implies recognition of a potential role for state boards in improving productivity. Better statewide planning and eliminating programs are other highly rated areas in which the boards are potentially key actors.

The third area, cooperative academic ventures between units, is the highest ranking of a number of areas which have to do with better management at the institutional level and which received at least a "moderately high" mark from half or more of the respondents. Cooperative support activities, better outcomes measures, better space utilization, and optimizing section sizes are the other areas in this group; in the next group down, receiving somewhat less interest on the part of the respondents, there are several more items that by implication suggest a belief that better management control can improve productivity.

As noted earlier, coordinating and governing board respondents had similar overall levels of concern about costs. They were not quite as close in their views as to the overall prospects for productivity improvements, as coordinating board officers were slightly more optimistic than governing board officers.

There was considerable agreement among the coordinating board respondents with respect to the particular action areas most open to productivity improvements, as there were three areas in which nearly 90 percent rated the prospects for improvement as at least "moderately high." The three most highly rated areas were the same for the two sets of respondents: cooperative library and computing ventures, controlling future academic expansion, and cooperative academic ventures between units.

Finally, with respect to possible cost studies, the responses to the second question indicate that the chief executive officers perceive a number of opportunities for improving productivity and thereby containing costs, other things being equal. The fact that there are a number of reasonable possibilities suggests that it would be useful for state boards interested in cost containment but without a clear cut agenda to begin with a modest cost-effectiveness analysis of potential state board initiatives in this arena. One might proceed by constructing a matrix in which for each potential initiative there would be an estimate of the magnitude of likely gains in productivity/cost savings, an estimate of the costs of the initiative (in dollars or some measure of effort), and an estimate of the chances for success (the results of the survey would be a place to start in estimating those chances).

Another survey question (Part I, Q17) is relevant to this discussion. Respondents were asked to list any studies they had undertaken or were planning on doing to examine costs or improve productivity. A total of 13 state boards responded to this query. There is no pervasive pattern in the listed studies or general approaches. The efforts at several boards were tied closely to the budget cycle, which suggests that they probably involved a very broad and fairly conventional look at costs. Some of the particular themes or issues mentioned or implied include the following: equity among institutions, academic middle management, various aspects of instructional costs, strategies for cost containment, formula review, faculty productivity, expenditures and revenues related to intercollegiate athletics, student assessment, and remedial education. The bulk of the interest is in the general area

of instruction, but one is struck more by the diversity represented in these themes than by their commonality.

One respondent noted that the survey questions seemed to imply that costs were bad, which did not seem right. The respondent has a point. Costs per se are neither good nor bad. They may be too high, but they may also be too low. In the last analysis, the most important issue is whether they make sense, whether they can be justified. Resolution of this matter in a given context can constitute a clear, unambiguous guide to decision making. But a fully satisfying resolution is possible only when the outcomes attendant to costs are reasonably well understood. This suggests that from a long-range view, state boards would be well advised to encourage their institutions and their own staff to pursue the connections between outcomes and costs. However small the steps might have to be along this difficult road, they do lead in the right direction.

APPENDIX

Selected Responses from the SHEEO Survey on
Tuition Policy, Costs and Student Aid*

Table 1

Number of Boards Reporting a HIGH or MODERATELY HIGH
Level of Concern about Particular Areas of
Higher Education Costs

Area of Cost	High	Moderately High	Total	Percent of Responses
Equipment/computer costs	18	20	38	82.6%
Graduate program costs	10	28	38	82.6%
Building/constr/renovation costs	15	19	34	73.9%
Program expansion costs	10	23	33	71.7%
Professional/medical school costs	16	15	31	67.4%
Library costs	10	21	31	67.4%
Program duplication	11	19	30	65.2%
Faculty productivity/workload	13	17	30	65.2%
Administrative/support costs	11	17	28	60.9%
Research costs	8	20	28	60.9%
Telecommunications costs	5	23	28	60.9%
Undergraduate program costs	4	17	21	45.7%
Athletic costs	8	7	15	32.6%
Other	3	3	6	13.0%
Faculty/administrator travel costs	1	4	5	10.9%

*Complete survey results are available from the SHEEO Office.

Table 2

Number of Boards Reporting a HIGH or MODERATELY HIGH
Level of Concern about Particular Areas of
Higher Education Costs

Coordinating Boards Only

Area of Cost	Moderately High	High	Percent of Total	Responses
Graduate program costs	7	16	23	82.1%
Equipment/computer costs	10	12	22	78.6%
Professional/medical school costs	12	9	21	75.0%
Program expansion costs	7	13	20	71.4%
Building/constr./renovation costs	8	11	19	67.9%
Program duplication	5	14	19	67.9%
Administrative/support costs	4	15	19	67.9%
Faculty productivity/workload	8	9	17	60.7%
Library costs	5	12	17	60.7%
Research costs	4	13	17	60.7%
Telecommunications costs	2	13	15	53.6%
Undergraduate program costs	1	12	13	46.4%
Athletic costs	6	4	10	35.7%
Other	2	1	3	10.7%
Faculty/administrator travel costs	0	1	1	3.6%

Table 3

Number of Boards Reporting a HIGH or MODERATELY HIGH
Level of Concern about Particular Areas of
Higher Education Costs

Governing Boards Only

Area of Cost	Moderately High	High	Percent of Total	Responses
Equipment/computer costs	8	9	16	88.9%
Building/constr/renovation costs	7	8	15	82.3%
Graduate program costs	3	12	15	82.3%
Library costs	5	9	14	77.8%
Faculty productivity/workload	5	8	13	72.2%
Program expansion costs	3	10	13	72.2%
Telecommunications costs	3	10	13	72.2%
Program duplication	6	5	11	61.1%
Research costs	4	7	11	61.1%
Professional/medical school costs	4	6	10	55.5%
Administrative/support costs	7	2	9	50.0%
Undergraduate program costs	3	5	8	44.4%
Athletic costs	2	3	5	27.8%
Faculty/administrator travel costs	1	3	4	22.2%
Other	1	2	3	16.7%

Table 4

Number of Boards Reporting a HIGH or MODERATELY HIGH Likelihood that an Area of Activity is Open to Reduced Costs/Higher Productivity

Area of Activity	High	Moderately High	Total	Percent of Responses
Coop library/computing ventures	27	17	44	93.6%
Controlling future acad expansion	21	19	40	85.1%
Coop acad ventures between units	17	23	40	85.1%
Coop admin/support between units	15	18	33	70.2%
Greater util of computer tech	10	21	31	66.0%
Greater util of dist learning/tele	13	18	31	66.0%
Better "outcomes" measures	11	20	31	66.0%
Better space utilization	10	21	31	66.0%
Better statewide master planning	15	15	30	63.8%
Optimizing section sizes	5	21	26	55.3%
Eliminating programs	8	17	25	53.2%
Increasing student-faculty ratios	6	16	22	46.8%
Reducing course offerings	5	16	21	44.7%
More joint ventures with business	4	16	20	42.6%
Reduction of the "remedial" load	9	10	19	40.4%
Structural reorganization	5	13	18	38.3%
Cutting back on administration	4	14	18	38.3%
Restricting access and enrollment	4	6	10	21.3%
Reducing time to degree	3	7	10	21.3%
"Privatizing" admin/support activ's	1	5	6	12.8%

Table 5

Number of Boards Reporting a HIGH or MODERATELY HIGH Likelihood that an Area of Activity is Open to Reduced Costs/Higher Productivity

Coordinating Boards Only

Area of Activity	High	Moderately High	Total	Percent of Responses
Coop library/computing ventures	20	7	27	96.4%
Controlling future acad expansion	16	9	25	89.3%
Coop acad ventures between units	13	12	25	89.3%
Coop admin/support between units	12	10	22	78.6%
Better "outcomes" measures	8	13	21	75.0%
Greater util of dist learning/tele	5	15	20	71.4%
Better statewide master planning	11	8	19	67.9%
Greater util of computer tech	7	12	19	67.9%
Better space utilization	7	12	19	67.9%
Eliminating programs	6	12	18	64.3%
Increasing student-faculty ratios	3	12	15	53.6%
Reducing course offerings	3	11	14	50.0%
Optimizing section sizes	2	12	14	50.0%
Reduction of the "remedial" load	7	5	12	42.9%
Structural reorganization	5	7	12	42.9%
Cutting back on administration	3	9	12	42.9%
More joint ventures with business	1	9	10	35.7%
Restricting access and enrollment	2	5	7	25.0%
Reducing time to degree	3	3	6	21.4%
"Privatizing" admin/support activ's	1	5	6	21.4%

Table 6

Number of Boards Reporting a HIGH or MODERATELY HIGH
Likelihood that an Area of Activity is Open to
Reduced Costs/Higher Productivity

Governing Boards Only

Area of Activity	High	Moderately High	Total	Percent of Responses
Coop library/computing ventures	7	10	17	89.5%
Controlling future acad expansion	5	10	15	78.9%
Coop acad ventures between units	4	11	15	78.9%
Greater util of computer tech	3	9	12	63.2%
Better space utilization	3	9	12	63.2%
Optimizing section sizes	3	9	12	63.2%
Better statewide master planning	4	7	11	57.9%
Great util of dist learning/tele	8	3	11	57.9%
Coop admin/support between units	3	8	11	57.9%
Better "outcomes" measures	3	7	10	52.6%
More joint ventures with business	3	7	10	52.6%
Reducing course offerings	2	5	7	36.8%
Increasing student-faculty ratios	3	4	7	36.8%
Reduction of the "remedial" load	2	5	7	36.8%
Cutting back on administration	1	5	6	31.6%
Eliminating programs	2	5	7	36.8%
Structural reorganization	0	6	6	31.6%
Reducing time to degree	0	4	4	21.1%
Restricting access and enrollment	2	1	3	15.8%
"Privatizing" admin/support activ's	0	0	0	0.0%

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